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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,428	03/31/2004	Jaswant Sandhu	8775-012	7624

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EXAMINER

ADAMS, GREGORY W

ART UNIT	PAPER NUMBER
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3652

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/815,428

Applicant(s)

SANDHU ET AL.

Examiner

Gregory W. Adams

Art Unit

3652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 36-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 27, 2006 has been entered.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, contact pad displacement and optically detecting contact pad displacement (claims 40, 41) must be shown or the feature(s) canceled from the claim(s). Moreover, a moving contact pad as specified on page 3 of 13, lines 17-20 should be shown. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate

changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 36 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. While Applicants specification defines "mechanically grasping" as "by other than by application of pneumatic force directly to a surface of a wafer" no other means has been disclosed in the specification or Figures as to make clear how non-pneumatic grasper mechanically grasps a wafer.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 36 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Lines 3-4 are confusing because it appears as though each end effector includes 5 blades or 25 total blades. It would be better to recite --wherein each of said plurality of end-effectors includes a blade--.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 36-39 & 42-45 are rejected under 35 U.S.C. 102(b) as being anticipated by Cameron et al. (WO 00/02803) (previously cited).

With respect to claim 36, referring to FIGS. 1-7 Cameron et al. discloses a method for moving wafers comprising positioning robotic hand blades 24, 116, inserting a hand 108, 116 into a receptacle 141, grasping wafers 140 with blades 24, 116, withdrawing a hand 108, 116, positioning a hand 108, 116, inserting a hand 108, 116 into a second receptacle 141, and releasing wafers.

With respect to claim 37, referring to FIGS. 1-7 Cameron et al. discloses a hand 24 which retrieves one wafer (or 2,3,4,5).

With respect to claim 38, referring to FIGS. 1-7 Cameron et al. discloses a method for moving wafers further comprising sensing wafer presence 58.

With respect to claim 39, referring to FIGS. 1-7 Cameron et al. discloses sensing wafer presence 58 and wafer position (page 4, Ins. 9-20) further comprises sensing wafer peripheral zone. Page 4, Ins. 9-20.

With respect to claim 42, referring to FIGS. 1-7 Cameron et al. discloses sensing wafer presence 58 and wafer position comprises optically sensing 58 a wafer peripheral zone. Page 4, Ins. 9-20.

With respect to claim 43, referring to FIGS. 1-7 Cameron et al. discloses mechanically grasping wafers 140 comprises mechanically grasping each wafer peripheral zone. Page 4, Ins. 9-20.

With respect to claim 44, referring to FIGS. 1-7 Cameron et al. discloses releasing wafers comprises arraying wafers in a second wafer receptacle.

With respect to claim 45, referring to FIGS. 1-7 Cameron et al. discloses a robotic hand which retains one wafer.

Claims 36-37 & 43-45 rejected under 35 U.S.C. 102(a) as being anticipated by Sundar (US 6,322,312).

With respect to claim 36, Sundar discloses a method for moving a plurality of wafers, comprising:

positioning a plurality of end-effectors of a robotic hand 190 adjacent an opening of a first wafer receptacle 402, 404 having a plurality of wafers arrayed therein, wherein the plurality of end-effectors also include a plurality of blades 64;
inserting the hand into the first wafer receptacle 402;

mechanically grasping a selected number of wafers by a corresponding number of blades (indicated generally as 92);
withdrawing the hand from the first wafer receptacle 402;
positioning the hand adjacent an opening of a second wafer receptacle 404;
inserting the hand into the second wafer receptacle; and
releasing the selected number of wafers into the second wafer receptacle.

With respect to claim 37, Sundar discloses a selected number of wafers is one of one, two, three, four, or five wafers.

With respect to claim 43, Sundar discloses mechanically grasping each wafer only at a peripheral zone thereof. FIG. 3.

With respect to claim 44, Sundar discloses releasing the selected number of wafers comprises arraying the wafers in the second wafer receptacle 402, 404.

With respect to claim 45, Sundar discloses a robotic hand structured to retain one or more grasped wafers during multi-planar movement.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cameron et al. (WO 00/02803) in view of Bacchi et al. (US 6,275,748) (previously cited). Cameron et al. discloses position and presence sensors but does not disclose

detection wafer position or presence via wafer pad displacement, or optical wafer pad displacement. Referring to FIGS. 1-18 Bacchi et al. discloses sensing wafer presence (col. 2, Ins. 20-24) comprises detecting wafer displacement of a wafer contact pad 222 comprises optically detecting 228, 230 (col. 12, Ins. 51-60) displacement of a wafer contact pad 222 (col. 12, Ins. 51-60) to reduce moving mechanisms within a robotic hand thereby reducing contamination within a wafer receptacle. Col. 2, Ins. 20-50. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the robotic hand blade of Cameron et al. to include sensing the displacement of a wafer pad by optically sensing pad displacement, as per the teachings of Bacchi et al., to reduce moving mechanisms within a robotic hand thereby reducing contamination within a wafer receptacle.

Claims 38-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sundar (US 6,322,312) in view of Bacchi et al. (US 6,275,748). Sundar discloses but does not disclose detecting wafer position or presence via wafer pad displacement, or optical wafer pad displacement. Referring to FIGS. 1-18 Bacchi et al. discloses sensing wafer presence (col. 2, Ins. 20-24) comprises detecting wafer displacement of a wafer contact pad 222 comprises optically detecting 228, 230 (col. 12, Ins. 51-60) displacement of a wafer contact pad 222 (col. 12, Ins. 51-60) to reduce moving mechanisms within a robotic hand thereby reducing contamination within a wafer receptacle. C2/L20-50. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the robotic hand blade of Sundar to include sensing the displacement of a wafer pad by optically sensing pad

displacement, as per the teachings of Bacchi et al., to reduce moving mechanisms within a robotic hand thereby reducing contamination within a wafer receptacle.

Response to Arguments

Applicant's arguments filed December 26, 2006 have been fully considered but they are not persuasive.

With respect to claim 36 Applicant argues that Cameron does not mechanically grasp. Excepting for the moment that Applicants Figures only show an apparatus which can merely pick up wafers, Applicant does recite specific structure to define how Applicant's end effectors mechanically grasp. Using the broadest reasonable interpretation Cameron discloses mechanical grasping inasmuch as Cameron's end effectors move up to contact wafers. Once in contact the end effectors through friction grasp wafers. Regardless of whether Cameron then employs a vacuum to retain a wafer on an end effector, at the point in which the end effector moves into contact to pick up a wafer there is a mechanical grasping. This moving into contact requires a drive motor and shaft 74, 76 and pivot mechanism 70 and picking up as disclosed in Cameron. Applicants used of dictionaries and trade manuals is irrelevant where the claim language on its face is unambiguous.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., mechanically grasping is edge contact) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26

USPQ2d 1057 (Fed. Cir. 1993). Moreover, arguments and extrinsic evidence can clear any ambiguity but "mechanically grasping" is clearly unambiguous. Applicants attempts to construe "mechanically grasping" as requiring a particular apparatus through dictionaries and trade manuals are appreciated but had Applicant intended this to be the only way to interpret mechanically grasp it would have claimed as much. Finally, as noted above under drawing objections Applicants FIG. 3 fails to show a moving contact pad and optical sensor as described in the specification.

With respect to claims 40-41 Applicant argues that Bacchi does not disclose gripping. With respects, gripping is "a tight hold; a firm grasp". www.dictionary.com. Curiously, at this point Applicant switches from arguing "mechanically grasping" to "gripping" (See Applicants Arguments page 10 of 12, line 9). Regardless, the cited prior art is used to secure a wafer on an end effector, Applicants ultimate goal. Any contact however slight is grasping. Thus, with respect to Bacchi page 2, Ins. 35-40, Bacchi's gripper works with rest pads to apply a force to a wafer peripheral to grip a wafer between a contact pad 222 while including optical detection 228, 230. This includes sensing contact pad displacement after a wafer peripheral zone contact.

Conclusion


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Balg et al. (US 6,092,971) and Kobayashi et al. (US 6,216,883).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory W. Adams whose telephone number is (571) 272-8101. The examiner can normally be reached on M-Th., 8:00-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Crawford can be reached on (571) 272-6911. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GWA


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